We can change our brain and its ability to cope with disease with simple lifestyle choices

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Lifestyle factors such as meditation can change our brain for the better. Credit: Guilherme Romano/Unsplash

Our life expectancy has increased dramatically over the past several decades, with advances in medical research, nutrition and health care

seeing us live well into our 80s. But this longer life expectancy has also come at a cost, as the longer we live, the more likely we are to develop neurodegenerative diseases such as dementia.

Despite the lack of treatments for these diseases, there's now a growing body of research to suggest there are a range of lifestyle changes we can adopt to help enhance our brain function. And even prevent brain disease.

Exercise

The effects of physical activity, particularly aerobic exercise, on brain health have been well studied. There's now evidence to suggest engaging in physical activity can improve brain health through a phenomenon called neuroplasticity. This is where brain cells can more easily respond to disease or injury.

Physical activity can induce a cascade of biological processes that improve function of brain regions responsible for memory, and things such as decision making.

In particular, going for a run or bike ride (as opposed to only strength exercises such as weight training) have been shown to increase levels of "brain-derived neurotrophic factor", a protein central to the growth and survival of brain cells. Brain imaging studies are also starting to confirm exercise training can result in a bigger hippocampus (the brain region responsible for memory) and improvements in memory.

Just as protein shakes may help muscles grow after exercise, the brain-derived neurotrophic factor may help to strengthen and generate brain cells. This in turn can increase the brain's ability to cope with injury or disease.

Meditation

Over the past decade, there's been an explosion of interest in meditation and mindfulness as a treatment of mental health disorders, particularly depression and anxiety.

Some studies have suggested long-term engagement in meditation is associated with physiological brain changes (such as larger brain volumes and higher brain activity).

But the extent to which meditation is associated with better memory, or with long-term protection against brain diseases, remains to be determined.

Exercise strengthens our brains as well as our muscles. Credit: Kyle Kranz/Unsplash

Hypnosis

Hypnosis is one of the oldest forms of psychotherapy. It is typically used as an adjunct treatment for pain, and a range of anxiety disorders, including post-traumatic stress. Recent studies show that during hypnosis, changes in brain activity are detected in brain regions that govern attention and emotional control.

One small study (18 patients) suggested hypnosis substantially improved the quality of life of dementia patients after 12 months, with patients experiencing higher levels of concentration and motivation. But this result is very preliminary, and requires independent replication with larger numbers of patients.

It's likely hypnosis plays an important role in reducing stress and anxiety, which may in turn improve focus, attention and wellbeing in general.

So what works?

The challenge with studying the effects of lifestyle changes on brain health, particularly over a long period of time, is the large degree of overlap across all lifestyle factors. For example, engaging in physical activity will be related to better sleep and less stress – which also improve our memory and thinking function.

Similarly, better sleep is related to improved mood. It may make people

feel more motivated to exercise, which may also lead to better memory and thinking function.

The extent to which we can truly determine the contribution of each lifestyle factor (sleep, physical activity, diet, social engagement) to our brain health remains limited.

But a wide range of lifestyle factors that are highly modifiable such as physical inactivity, obesity, chronic stress and high blood pressure can have far-reaching effects on our brain health. After all, it is mid-life high blood pressure, obesity and physical inactivity that can increase our risk of dementia in later life.

Recently, a large study of 21,000 American adults aged over 65 suggested the prevalence of dementia fell significantly from 11.6% to 8.8% (nearly a 25% reduction) over 12 years (from 2000 to 2012). The researchers suggested this decrease in prevalence may be due to increases in education and better control of risk factors for high cholesterol and high blood pressure.

This provides some hope that we can, to a certain extent, take charge of our brain health through engagement in a wide range of beneficial activities that seek to improve mental function, improve heart health, or reduce stress.

It's never too early to start investing in the health of our brains, particularly when these lifestyle changes are easily implemented, and readily accessible to most of us.

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